Maternal and Child Health Master's Paper

Increasing Demand for Maternity Services in Developing Countries

A Review of the Evidence for Financial Incentives

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Abstract

Demand-side financing schemes have increased in visibility over the past two decades as they are increasingly used in developing countries to address inequities in public service delivery. Conditional cash transfers (CCT) and vouchers are two such financing schemes that require certain behaviors of beneficiaries in exchange for financial incentives. This review of the literature identifies 11 evaluations of financing schemes and their impact on utilization of maternity services. The results show a positive correlation between participation in a CCT or voucher scheme and use of prenatal care and skilled delivery. Consumer-led demand-side financing schemes have the potential to improve health inequalities and outcomes for marginalized populations in developing countries.

Introduction

Since the adoption of the Millennium Development Goals (MDGs) in 2000, there has been a renewed focus on key development indicators. As found in MDG 5, the United Nations member countries have committed to reducing maternal mortality by three quarters by 2015.[1] Key to the achievement of this goal is ensuring that women have access to and utilize basic maternity services that have been proven to save lives. Basic interventions such as having a skilled birth attendant who can recognize the signs of complication can have dramatic effects on preventing maternal deaths, and yet it is estimated that such skilled birth attendants are only present at half of all deliveries worldwide.[2]

Other sound interventions such as antenatal and postnatal care have been proven effective at reducing maternal risk and are also shown to be extremely cost-effective.[3] Despite what is known about methods of reducing maternal morbidity and mortality, women still fail to access these life-saving services. The barriers to accessing services vary greatly by country context and they are multidimensional, but some are consistent across countries. A key barrier to preventive service utilization is both direct and indirect costs of the service. Poor women are especially vulnerable during pregnancy in the face of these barriers. With less access to disposable cash and often at farther distances from health facilities, their health care options are limited if not absent.

Research has shown that the poor benefit less from public spending on health than wealthier groups despite their arguably greater need.[4] Because poor women fail to access the services that could save lives, innovative methods of increasing demand among poorer

populations for maternity services are crucial to meeting global health goals. Within the past two decades, financial incentive programs have been created to increase demand for health services among marginalized populations. Conditional cash transfers (CCTs) and voucher schemes are two of the more widely-implemented demand creation interventions in low- and middle-income countries. While there is significant literature available on childhood outcomes in health and education as a result of these types of programs, there is far less known about maternal health outcomes. Yet there does exist research on utilization of maternity services in varying contexts even if this is not the primary objective of the particular CCT or voucher intervention. Through a literature review this paper attempts to illuminate what is known about demand-side financing schemes to improve utilization of maternity services.

The first portion of this paper will provide background on the types of demand-side financing schemes currently being used and a summary of the current research not related to maternity services. The second portion of this paper is a formal literature review of those evaluations of demand-side financing schemes that look specifically at utilization of maternity services as an outcome. Finally, the paper will address the challenges and considerations of implementation of these types programs in varying contexts.

The Basics of Demand-Side Financing

Supply vs. demand-side financing

Many traditional programs to improve health outcomes have focused on the supply side of the health system. Historically, interventions have been centered on reducing supply barriers to healthcare in developing countries.[4] Interventions to increase availability, quality, and efficiency of services play a vital role in improving health outcomes, but research has shown that supply-side interventions fail to reach the poorest and most vulnerable populations.[5] World

Bank analysis has shown that health expenditures that reach the poorest 20 percent of the population is always less than 20 percent of total expenditures.[6]

Within the past two decades, there has been a policy shift towards addressing demand-side factors that can be controlled through financial interventions as an alternative to more traditional social assistance programs that relied upon allocating resources through supply-side mechanisms such as general subsidies or grants.[4,7] Demand-side determinants are the factors that influence demand for health services such as individual preferences, cultural practices, and community norms. Additional barriers such as user fees, distance to services, opportunity costs related to seeking services, and lack of education and information can also impact demand.[4] Demand-side financing, intended to influence the demand-side determinants of healthy behaviors and health-seeking behaviors, has been defined as "a means of transferring purchasing power directly to specified groups of service users for the purchase of defined goods and services."[5(pp 5)]

So why do we care about changing demands? If we consider the Three Phases of Delay Model to seeking timely healthcare, the first two delays are demand barriers, the second being both a supply and demand barrier.[4] These are 1) a delay in the decision to seek care, and 2) a delay in the arrival at a health facility.[8] As such, addressing demand-side barriers to seeking healthcare is a crucial mechanism to ensuring access to timely and appropriate health services.

One of the key demand-side determinants for the poorest and most vulnerable is costs associated with seeking healthcare. If services are to be used, they need to be affordable to the target audience. Costs associated with seeking healthcare are complex and include more than the actual fees for the service. Costs can include direct fees, transportation to facilities, opportunity costs, informal payments to service providers, and even direct purchase of necessary commodities.[4] For example, countries have seen great success in making vaccinations

free in order to reach a wide population base.[9] Research has shown that user fees for health services tend to hurt those who most need the service.[2] Although it has been suggested that people in the lowest wealth quintiles have lower opportunity costs due to high unemployment and fewer job demands,[10] overall costs generally place the greatest burden on the financially needy.

Financial and programmatic interventions to improve demand side barriers to health seeking behaviors include vouchers or coupons, conditional cash transfers, and health funds or insurance schemes.[11] This paper will focus on those interventions that provide a financial incentive for the user to engage in the health system, namely CCTs and vouchers.

Incentives

We intervene on the demand side for one of two reasons: 1) to correct market failures, or 2) for social equity.[4] While improving efficiencies in health systems (the market) can be achieved through financial incentives, these types of programs are most often designed to mitigate social inequalities that result in poor health outcomes for certain vulnerable populations. The morality of using incentives for behavior change has been debated in the literature, some feeling it is government paternalism, others suggesting it can create unanticipated negative outcomes, and yet others saying these programs can stigmatize already vulnerable population groups.[12] Nevertheless, incentives are still used as a means of achieving desirable behavior by governments in many contexts.

Incentives "work on learning theory principles by providing an immediate reward for behaviors that usually provide health gains in the longer term."[12(pp 983)] For demand-creation financial incentives to be effective, the value of the incentive must exceed the costs associated with the behavior. Ideally, services would already be free to those populations being incentivized to increase their uptake of the service. Incentives are almost always provided to the

woman of the household even in programs designed to benefit the entire household. Women are primary recipients of the incentives, because there is some evidence that unearned income received by women tends to improve children's health more than unearned income received by men.[13] Incentives can come in the form of cash or direct transfer of funds to a bank in countries with established banking systems. There are no explicit obligations as to what families can do with their funds once the obligations for receipt of funds are completed, but the hope is that financial incentives will be used to increase consumption of products or services to improve health and family wellbeing.

In many contexts where financial incentives are used to increase demand for services, it is used in a combination of several public sector service financing schemes. Financial incentives for health, education and nutrition are mutually reinforcing interventions that are designed to magnify the effects of any single intervention.[7, 14] While these public sectors may often be associated with traditional welfare programs, demand-side financing is distinct from welfare in some important ways. Directly providing cash to the poor can be empowering to the poor when they are given the freedom to determine how the funds are spent. It provides a direct link between service providers and the poor where they may not have existed before.[7] Incentives have also been shown to be of a sound technical design as will be discussed in the results section of this paper.

Conditional Cash Transfers

History of Programs

Conditional cash transfers (CCTs) are "transfers made subject to certain actions or activities by the beneficiaries,"[15(pg 572)] and as such, they are the first type of incentive scheme to be explored in depth in this review. CCTs developed out of a policy emphasis on market-oriented

demand-side interventions in Latin America.[7,14] Out of a growing frustration with the lack of results from supply-side interventions, the government of Mexico created a program to affect demand for public services. Mexico's *Progresa* was the first of the CCT programs with the intention of breaking the intergenerational cycle of poverty among Mexico's poorest. This was a true social transfer program where "non-contributory, regular and predictable grants, in cash or kind […} are provided to vulnerable households or individuals in order to ensure a minimum level of well-being"[5(pg4)] with the addition of requiring a set of prescribed behaviors. Families who met certain qualifications of poverty and met educational, nutritional and health conditionalities received regular cash transfers each month. The program was designed to capitalize on the mutual reinforcement of these related social services. Early evaluations of *Progresa* showed positive outcomes on infant and child health, school enrolment, and child nutritional status.[16-19] With these positive outcomes, other countries in Latin America began to implement their own versions of CCTs with a focus on improving human resources.[14]

With the proven success of CCT programs in Latin America, a series of similar programs have been adopted in other regions of the world. There has been particular enthusiasm in South Asia, but context is important to demand-creation programs resulting in some significant differences in program methodology.[20] Perhaps for this reason, CCT programs have not been very popular in Africa where there is typically less administrative capacity. Nevertheless, CCT programs are being piloted in some African contexts, and computer simulations have shown there is the potential to reduce food insecurity through CCT programs.[15]

How it works

Once a family or individual has been identified as meeting the eligibility requirements to participate in a CCT program, they are enrolled to receive funds conditioned upon fulfilling certain requirements. In Mexico, Columbia and Honduras, funds are only dispersed with

compliance with the following conditionalities: 1) proof of regular school attendance of eligible children, 2) collection of nutritional supplements, 3) completion of routine child preventive health visits as well as pregnancy care when applicable, and 4) parental attendance at health and nutrition education classes. Cash is transferred on a regular schedule rather than directly at the completion of each conditioned behavior. For those programs more focused on pregnancy-related outcomes, conditions for receipt of funds are use of maternity services to include delivery within a health facility with an accredited provider. (See Table 1)

Programs differ in the disbursement of funds. The Latin American programs provide cash transfers in the form of a monthly or bi-monthly stipend given directly to the woman of the household. Honduras' program even provides monetary vouchers that can be used like cash throughout much of the country.[21] On the other hand, those programs that focused on location of delivery during pregnancy only provided the cash transfer at the completion of the pregnancy. This requires women to pay upfront costs that will be reimbursed with the cash transfer post-delivery. In Nepal and India, CCT programs also contained an element of provider quality improvement by incentivizing providers to offer and improve these services. Providers contracted to participate in CCT programs were given cash transfers based upon the number of participants to whom they provide service. While each program differs to some extent to suit the contextual needs, the incentive remains and can be compared across contexts with caution.

Public health experts recognize that CCTs are not without their problems during implementation on the ground in developing countries. As countries begin to pilot projects and evaluate young CCT programs, difficulties and unknown elements are being discovered. First, programs are only successful if the intended beneficiaries participate. Some of the younger programs in South Asia have confronted the challenge of advertising their program and ensuring that participants understand the benefits of the program.[20] Once participants are enrolled,

incentives may not be enough to change behaviors. Time and transport are not directly addressed in CCT programs, but they may be one of the primary barriers to access of services.[22] If participants are required to pay costs associated with seeking services before they receive a cash transfer, this may not actually lead to increased access to services due to the temporality of incentives.[23,24]

Administrative challenges are very real in developing country contexts. If the capacity to implement CCT programs exists, there is the need to transfer ownership of the policy to lower levels of government.[20] Eligibility requirements need to be carefully communicated to the lowest level for the program to run effectively.[20] Administration of the program can only be effective if the supply side is of a quality to attract beneficiaries and is sufficient to meet demands.[7] All of these challenges exist in an environment where significant questions remain as to the appropriate size of transfers, threshold effects, cost effectiveness of programs, and unintentional outcomes.

Overall Impact

Apart from the outcome of interest for this review, evaluations have shown CCT programs to have a positive impact on a number of far-reaching outcomes. Mexico's *Progresa* program was found to decrease childhood morbidity, anemia and increase height in children.[18] It also led to decreases in the incidence of low birthweight, the mechanism potentially being improved maternal nutrition, improved prenatal care utilization, or improved quality of care.[25] One interesting finding was a dose-response reduction in socio-emotional problems among children of beneficiary families in the later stages of Mexico's CCT program.[26]

Programs in Columbia and Honduras were associated with increased uptake of child preventive healthcare.[21,27] Columbia's program was also shown to increase household consumption as well as increase newborn birthweight.[27] Programs in Columbia, Honduras and

Mexico positively impacted school attendance for eligible children.[14,21,27,28] Similar to Mexico's CCT program, programs in India have been shown to reduce perinatal and neonatal deaths by a statistically significant margin.[29] While many of the CCT programs, particularly in South Asia, are designed to reduce maternal mortality and morbidity, there is little evidence to support this claim due to the difficulty of sampling a large enough population to detect a change in this rare outcome.[29]

CCT programs are not immune to negative unanticipated consequences. *Progresa* and later *Oportunidades*, being the most evaluated of the programs, were not always associated with positive outcomes. For instance, intervention areas saw significant increases in cesarean section rates, although the cause of this association needs further analysis.[30] Additionally, *Oportunidades* saw higher BMI, overweight, obesity and hypertension among its adult participants despite the conditionalities themselves being associated with better adult health.[31]

Conditional vs. unconditional

This paper focuses specifically on conditional cash transfers, but unconditional cash transfers have been used widely in some settings with similarly positive results. Unconditional cash transfers include social pensions, family and child support grants, and other direct cash grants to specific populations. These types of programs have not been included in the current literature review, because their target beneficiaries in developing countries are the elderly and children rather than pregnant women.[5] Where used in Zambia and South Africa for pensioners and vulnerable children, unconditional cash transfer programs have improved health outcomes.[32]

The debate remains as to whether improved outcomes seen in CCT programs can be attributed to the conditionalities or if similar results would be seen with unconditional cash transfer programs in the same contexts. There is very limited evidence on the role of

conditionality on outcomes, so this leads to speculation among health financing experts.[12,32] One of the assumptions of conditional cash transfers is that households would not invest resources into social services such as healthcare that are required of the CCT program should they not have those conditions imposed upon them. Research has shown that households would consume less of the conditioned-on goods without the conditionality in place,[33] but other research has shown that households tend to spend unconditional cash transfer funds on items and services that will benefit the family such as food, clothing, and school fees.[34] Other studies have shown that unconditional transfers will improve the welfare of poor families regardless of how the money is spent.[13] Some suggest that both types of cash transfer programs work in developing countries through increasing use of services or food consumption to improve health no matter the conditionality.[5]

It remains to be seen whether it is the conditions themselves or the regularity of payments in cash transfer programs that make the difference.[5] Many proponents still believe that conditional cash transfers can encourage societal preferences where unconditional cash transfers cannot.[33] Also, conditionality encourages self-selection, so resources are targeted to those who are committed to improving the welfare of themselves or their families. It similarly engenders a sense of co-responsibility beyond a traditional cash handout.[14] This debate is more applicable to financing schemes targeted to more diverse populations, so schemes targeted towards pregnant women remain conditioned.

Vouchers

A Near-Cash Transfer

Where conditional cash transfers are direct transfers of money to beneficiaries, vouchers are considered to be "near-cash transfers."[5] Vouchers work under the same premise

as cash transfers in that they require certain behaviors or conditionalities, but the incentive is always rewarded after the behavior and in most often in exchange for goods or services.[35] Unlike CCTs where recipients must cover costs for services independent of receiving the cash transfer, vouchers cover costs of services at the point of receipt of services.

Vouchers are particularly well-suited to address maternal outcomes. Vouchers can easily target specific marginalized groups, and pregnant women are an easily identifiable group in need of specifically defined services.[2] Pregnant women receive paper vouchers that entitle them to free maternity services where fees are a barrier to utilization. Most programs also provide additional monetary incentive above and beyond the value of the maternity service fees to provide additional incentive and to overcome costs associated with seeking care. These could include vouchers for transportation. There are voucher schemes that charge beneficiaries a nominal sum for the purchase of the voucher, but this paper looks specifically at cost-free vouchers.[36] Vouchers are particularly beneficial for poorer populations, because they reduce the need to pay for services in advance, although beneficiaries may still be required to pay for transport costs and associated opportunity costs.[2]

Systems for implementing voucher schemes vary by country and scope of the program, but the vast majority utilizes a contracting mechanism. Providers, most often private, enter a contract with the managing agency or organization. Inclusion in the program is dependent upon certain criteria of service and facility quality. Funds are transferred directly to the service provider to distribute to voucher holders. Programs in Bangladesh and Cambodia also provide monetary incentives to the service providers who participate in the voucher scheme to be used at the provider's discretion.[11,37-39] This is intended to improve service quality while simultaneously increasing demand.

The contracting of service providers to participate in voucher schemes based upon their quality is most often described as *competitive vouchers*. Particularly in countries where there are inherent problems with public healthcare, turning to private providers may be a valuable option.[11,35] It is a type of performance-based funding that can increase patient satisfaction as well as technical quality.[35] Selection criteria themselves can heighten service quality, but quality checks and/or trainings need to be completed routinely to maintain quality standards.[36] In addition, contracting of service providers can promote competition, and reduce provider-induced demand while stimulating demand for under-consumed services.[35,36] While these results are highly desired, the costs of implementing competitive voucher schemes can be high in both administrative resources and costs per transaction.[35]

Overall Impact

Vouchers have been praised within the literature for their transparency, ability to affect quality standards, and their potential role in creating competition among service providers,[40] but many voucher schemes are relatively new and only beginning to be expanded to larger population groups. There is limited evidence as to their efficacy, but evaluations are starting to be rolled out as will be discussed further in their relation to uptake of maternity services. Initial findings have shown the difficulties with administration of programs particularly in Bangladesh where workers are over-extended as voucher schemes are added to their workload.[11,24] The need for far-reaching advertising of the availability of the vouchers has led to a slow start in Cambodia.[41] Programs have seen failures when the community was not engaged in the distribution of vouchers.[36]

As always, there is a need to improve the supply side to ensure that women actually use the vouchers they receive, a concern in Cambodia where voucher use dropped off during women's pregnancies due to the perceived poor quality of services.[24,40] It has also been feared

that vouchers may actually provide an incentive for women to have more children in order to receive the cash associated with the vouchers, although this needs to be studied further.[11] There is always the opportunity for corruption in voucher schemes which can increase the need for thorough monitoring systems. Despite these fears, initial evaluations have shown that voucher schemes have a positive impact on utilization of health services, quality of services, and health outcomes for women.[40] Finally, the majority of women in Bangladesh reported using voucher funds for food or medication as intended by the voucher scheme.[24]

Table 1. Demand-side Financing Scheme Objectives, Elements and Conditions by Country

	Country	Program	Program Components	Objectives	Conditions
Conditional Cash Transfers	Mexico	Progresa/ Oportunidades	Monthly health and nutrition stipend plus educational stipend for school-aged children.	To break the inter-generational transmission of poverty by providing incentives for parents to invest in the human capital of children.	Required to use the formal health system for primary care, attend prenatal care if pregnant, accept nutrition supplements, bring children to routine health visits, and attend health education classes
	Honduras	Family Assistance Program (PRAF II)	Educational, nutrition and health vouchers (used like cash)	To break the inter-generational transmission of poverty by providing incentives for parents to invest in the human capital of children. Health objective was to increase the demand for preventive health care among pregnant women and children.	Eligible children required to maintain regular school attendance, attend routine health visits and parents should attend health education classes
	Nepal	Safe Delivery Incentive Program (SDIP)	Cash to women giving birth in a health facility and cash incentives to health providers for each delivery attended (whether in a facility or at home)	To increase utilization of professional care at childbirth to reduce maternal morbidity and mortality.	Delivery in a public health facility

	India	Janani Suraksha Yojana (JSY)	Cash to women giving birth in a health facility	To reduce the numbers of maternal and neonatal deaths by increasing the proportion of births in a health facility	Delivery in a government or accredited private facility
Vouchers		Chiranjeevi Scheme	Voucher for free maternity services from any contracted provider	Improve utilization of facility deliveries, increase availability of emergency obstetric care, and reduce maternal mortality	Utilization of facility-based maternity services with contracted providers
	Bangladesh	Maternal Health Voucher Scheme (MHVS)	Voucher for free maternity services (3 ANC check-ups, safe delivery, 1 postnatal check-up). Women receive payment in cash at the completion of the visit. Also receive small in-kind gifts.	To decrease maternal morbidity and mortality to achieve the target for MDG 5	Utilization of maternity services in contracted private facilities of any public facility
		Demand-side Financing Pilot	Voucher for free maternity services (3 ANC check-ups, safe delivery, 1 postnatal check-up). Women receive payment in cash at the completion of the visit. Also receive small in-kind gifts and transportation funds.	To increase utilization of quality maternal care among poorer populations	Facility-based birth or birth with a skilled attendant
	Cambodia	Health Equity Fund and vouchers	Voucher for free maternity services (3 ANC check-ups, safe delivery, 1 postnatal check-up). Women receive payment in cash at the completion of the visit. Also receive small in-kind gifts and transportation funds.	To improve access to safe delivery for poor women to reduce maternal and newborn mortality and morbidity	Utilization of maternity services in contracted health facilities

Targeting

Research has shown that the poor benefit less from public spending than do their wealthier counterparts.[4] This suggests that traditional supply-side funding will not reach those who need access to services most. In addition to public spending, wealthier groups will 1) spend more in absolute terms on health care, 2) are more likely to seek health care when they need it, and 3) are more likely to see a doctor when they do seek care.[42] While universal demand-side financing schemes are simplest and cheapest to implement,[5] some countries have felt it a moral imperative to target specific groups for these reasons.

Targeting is a process by which specific groups or individuals become the intended beneficiaries of a financial incentive intervention. Depending upon the purpose and the goals of the intervention, the method of targeting may be different. In general, there are several different methods of narrowing down the beneficiaries. Categorical targeting focuses on a specific group of people with a common characteristic such as all pregnant women. Geographical targeting focuses the intervention on residents of a certain area or region such as a district or province with high levels of poverty. Other programs use more demanding targeting methods such as proxy means testing to identify individuals or households that qualify for the incentive based on indicators of their relative level of poverty such as level of education, household goods, and the condition of their home. Similar indicators might also be used in community-based targeting which relies upon community workers to identify eligible households or individuals.[5] In reality, most programs use some combination of these targeting schemes to address the unique needs and goals of their program. (See Table 2)

Targeting has the capacity to direct programmatic funds to the intended recipients, but it is not without complications. Costs of identifying eligible individuals and households as well as cost effectiveness of targeting in developing countries are rarely studied in the literature and

need further research.[2] Targeting can require significantly more time and administrative costs compared to other beneficial financing mechanisms and supply-side health interventions, so programmatic costs need to be considered.[2] In addition to costs, targeting risks missing certain households and individuals that might be captured in more universal programs, either due to poor outreach or inappropriate criteria for inclusion.[32] And there is always the fear that targeting will increase stigma against already marginalized groups. Some feel that certain criteria for targeting might actually discriminate against those who need the program most (e.g. only women with two or fewer children). [20] Without targeting, some programs have in fact not been able to reach the poorest and most needy. India's CCT program saw the greatest use among the middle wealth quintile in districts with universal coverage.[29] In general, targeting is a valuable tool to ensure that your program is meeting its goals and reaching those who will benefit most.

Table 2. Method of Targeting by Program

	Country	Program	Method of Targeting
Conditional Cash Transfers	Mexico	Progresa/ Oportunidades	Two stage targeting that 1) identified poor communities for geographic targeting in rural Mexican provinces based upon literacy, household infrastructure and employment from census records and 2) identified households for inclusion based upon socioeconomic characteristics.
	Honduras	Family Assistance Program (PRAF II)	Two stage targeting that 1) identified 70 municipalities with the highest prevalence of malnutrition and 2) identified poor households with pregnant women or children under 3.
	Nepal	Safe Delivery Incentive Program (SDIP)	Universal categorical coverage for pregnant women on a national scale.
	India	Janani Suraksha Yojana (JSY)	Universal coverage in 10 low-income states. In other states, pregnant women were eligible if they held a below-poverty-line card issued by the government, or if they were in a low scheduled caste.
Vouchers		Chiranjeevi Scheme	Two stage targeting that limited the geographic scope to the state of Gujarat and then included only pregnant women with below-poverty-line cards issued by the government.
	Bangladesh	Maternal Health Voucher Scheme (MHVS)	Universal categorical targeting of pregnant women in nine sub-districts with high poverty and poor maternal health outcomes. In remaining 24 sub-districts, beneficiaries identified through proxy-means testing by community committees.

		Demand-side Financing Pilot	Universal categorical targeting of pregnant women in the poorest of the 33 sub-districts of implementation. Community-based means testing is used in other sub-districts to identify beneficiaries.
	Cambodia	Health Equity Fund and vouchers	Community-based proxy means testing of pregnant women using agreed-upon criteria and community-based worker assessment to identify participants.

Methods

A literature search was conducted through online databases and search engines to identify evaluations of financial incentive schemes for demand creation. Search terms included a combination of the following: *conditional cash transfer, cash transfer, health, health behavior, developing countries, low-income countries, demand, demand-side financing, demand creation, maternity services, maternal health services, maternal outcomes, financial incentives, financial barriers, vouchers, and competitive vouchers*. Relevant citations were also considered for inclusion. The review identified a total of 11 articles that addressed financial incentives that affect the outcome of demand for maternity services. For this paper maternity services include prenatal care, skilled birth attendance, facility-based birth, and postnatal care.

The scope of this review was limited to interventions in low- and middle-income countries (also sometimes described as developing countries). This paper specifically focused on those interventions where money was directly transferred to individuals or households through conditional eligibility and/or vouchers. Studies on in-kind incentives were excluded. Studies on unconditional cash transfers related to maternity services were not found and are therefore also not included. This review is also limited to those schemes that have conducted an evaluation whether internal to the program or external. There exist a number of financial incentive schemes that have yet to be formally evaluated. All types of evaluations were included due to the limited availability of more rigorous evaluation methods for programmatic research of demand-side financing schemes.

The evaluations vary in their scope and dependent variables of interest, but all of the included articles provide results on the scheme's impact on use of maternity services. While this paper looks at changes in service consumption, evaluations also often study the effectiveness of targeting and coverage of the program as well as the quality of available services. This paper will touch upon these topics where relevant.

Table 3. Program Evaluations

	Country	Program	Evaluations	Study Design	Service Utilization Outcomes	Select Limitations
Conditional Cash Transfers	Mexico	Progresa/ Oportunidades	Barber (2008), Barber et al. (2010)	Cluster randomized controlled trial	Beneficiary status does not predict place of delivery. Improved quality of prenatal care. No difference in seeking prenatal care or the in the number of prenatal visits.	Recall bias via mother's report.
	Honduras	Family Assistance Program (PRAF II)	Morris et al. (2004)	Cluster randomized controlled trial	Increase in the mean percentage of women receiving prenatal care by 19 percentage points.	Recall bias via mother's report. ANC rates higher among control group at baseline.
	Nepal	Safe Delivery Incentive Program (SDIP)	Powell-Jackson et al. (2009)	Qualitative study with purposive sampling design	Substantial increase in skilled birth attendance in districts with appropriate policy implementation. No difference found in districts with poor implementation.	Problems with administration and implementation of the program. Only evaluates the results of early implementation of the program.
	India	Janani Suraksha Yojana (JSY)	Lim et al. (2010)	Quasi-experimental time series design with comparison group	Receipt of financial assistance from JSY was associated with a significantly increased probability of receiving antenatal care, giving birth in a health facility, and either giving birth in a facility or having a skilled attendant present at the time of delivery. The effect was higher in high-focus than non-focus states.	Treatment effects are only estimated. Most recipients were from the middle wealth quintiles.
Vouchers		Chiranjeevi Scheme	Malavankar (2009)	Quasi-experimental pre- and post-test design without comparison	Estimated 27% to 28% increase in institutional deliveries among poor women	Difficult to find enough private providers to implement program.

				group		
	Bangladesh	Maternal Health Voucher Scheme (MHVS)	Ahmed et al. (2010)	Qualitative study	Reported increase in demand for antenatal, delivery and postnatal care by poor women in the community. Increase in institutional deliveries upon expansion of the program to public providers.	Poor planning, administrative barriers, shortage of vouchers, delay in the release of funds, limited supply of quality maternity services in some areas.
		Demand-side Financing Pilot (DSF)	Hatt et al. (2010), Schmidt et al. (2010)	Quasi-experimental time series design with comparison group	Institutional deliveries increase 2.5 times that of comparison areas. Institutional deliveries were twice that of comparison group. Intervention group significantly more likely to attend 3 ANC visits, and seek PNC.	Only 2 years into the pilot program.
	Cambodia	Health Equity Fund and vouchers	Por et al. (2008), Ir et al. (2010)	Quasi-experimental time series design with comparison group	Facility deliveries increased from 16.3% of the expected number of births to 44.9% in 2 years but also among self-paying deliveries. Larger increase in intervention areas than comparison group.	Confounding of other interventions and improvement in provider performance.

Results

Table 3 summarizes the characteristics and results of 11 studies published between 2004 and 2010 on changes in utilization of maternity services with the implementation of demand-side financing schemes. Of the 11 evaluations selected for inclusion in this review, 5 evaluated the implementation of CCT programs while the remaining 6 evaluated voucher schemes. The interventions evaluated in the 11 studies took place in Mexico, Colombia, Honduras, Nepal, India, Bangladesh and Cambodia. Evaluations were assessed based upon their study design and quality, reported impact upon the outcomes of interest, and programmatic design limitations that may have affected the outcomes.

The evaluations considered different elements of maternity services in their studies. The most common output indicator evaluated was skilled birth attendance or facility-based births as found in Nepal, India, Bangladesh and Cambodia. All of these programs saw increases in skilled birth attendance or the proportion of women utilizing birthing facilities. The program in Nepal only saw improvements in the districts where the program was properly implemented, highlighting the need for quality program implementation if results are to be achieved. India's *Janani Suraksha Yojana* (JSY) program improved outcomes, but the greatest improvements were seen in the middle wealth quintiles, showing a failure to reach the target beneficiaries. The Bangladesh *Maternal Health Voucher Scheme* (MHVS) faced many obstacles to implementation, but also showed improved results in skilled deliveries particularly when expanding services to the more widely-available public sector. Cambodia saw dramatic improvements in facility-based deliveries among all women, but a greater increase was seen among voucher program participants. It should be noted that evaluations of Mexico's *Oportunidades* program did consider place of delivery and found that participation in the CCT program was not predictive of place of delivery.[30]

Other evaluations placed emphasis on routine pregnancy care such as prenatal visits. These are easily quantified and were often a requirement for CCTs and voucher fund disbursement. Programs in Mexico, Honduras, India and Bangladesh all saw increased demand and use of antenatal services. Most striking was the 19 percentage point increase in the mean number of women seeking prenatal care in Honduras, even with a control group that was found to have a higher rate of antenatal care use at the start of the program.[21] While Bangladesh's *Demand-Side Financing Pilot* (DSF) is a small-scale project and was evaluated in its early stages, it has shown positive increases in antenatal care utilization. Interestingly, Mexico saw increases in the number of prenatal procedures that beneficiaries received in comparison to the control

group, but no increase was found in the number of antenatal visits women attended despite it being a requirement of the CCT.[43] Only the evaluation of Honduras' program looked as postnatal care, and it found no effect on ten day postnatal check-ups.[44]

While not a direct measure of utilization of maternity services, several of the evaluations looked at quality of care and patient satisfaction with care. Understanding relative quality or perceptions of quality are important to identifying why services are or are not being utilized when other barriers are removed.[7] In all instances where satisfaction with services was asked of women beneficiaries, results were always positive.[11,37-39,45] One author has suggested an improvement in quality of care and satisfaction with care is a result of women's empowerment through increased control over resources, education related to quality and service expectations, and use of service providers that may have previously been unattainable.[43]

While all of the evaluations included provide data on the effect of the financing scheme on utilization of maternity services, this was not the primary intended outcome of some of the interventions. (See Table 1) The CCT programs in Latin America were primarily designed to improve child health, education and family consumption. Despite this, evaluations of programs in Mexico and Honduras found that care-seeking behavior of women changed potentially in response to health education sessions or greater exposure to the health system as child caretakers. In Mexico where skilled delivery attendance was not a program requirement, women were introduced to a wide range of reproductive health services as they were required to use the formal health system for primary care.[30]

The evaluations included are of varying quality and scientific rigor. (See Table 3) The evaluations of the CCT programs in Mexico and Honduras are considered to be the most rigorous. Described as cluster randomized controlled trials in the literature, these evaluations capitalized on the gradual phasing in of the program over time based upon available resources.

Target communities were assigned to receive the intervention or to remain a control until further resources were available. This provided a well-matched control group for comparison until the intervention was expanded. In fact, the roll out of these programs was designed to evaluate program impact and operational design.[7]

The *DSF* voucher program in Bangladesh, India's *JSY*, and the Cambodia voucher program were evaluated using quasi-experimental designs. Comparison groups were derived from women who would be eligible for the voucher program if they lived in the area where the program was currently being implemented. Surrounding districts or states were used to find women with the most similar backgrounds and living conditions. The India *Chiranjeevi Scheme* was evaluated using a pre- and post-test design without a comparison group. The Bangladesh *MHVS* and Nepal's *Safe Delivery Incentive Program* were entirely qualitative evaluations using purposive sampling of beneficiaries and program implementers.

Sources of program data used for the evaluations also varied between countries and programs. The qualitative studies relied upon key informant interviews and focus group discussions. The India *Chiranjeevi Scheme* evaluated cross-sectional data from the project management information system (MIS) and the routine health information system (RHIS) in the project area. India's *JSY* project and Bangladesh's *DSF* project conducted household interviews as well as looking at project data and the RHIS. Cambodia's voucher program did not conduct a household interview, but compared the intervention and control groups through evaluating RHIS and available project databases in addition to qualitative data collection. All of the experimental and semi-experimental evaluations attempted to control for potential confounders.

Discussion

Based upon the results of the 11 studies included in this literature review, demand-side financial incentives can positively affect the uptake of maternity services in low- and middle-income countries. The studies included evaluated programs in Mexico, Colombia, Honduras, Nepal, India, Bangladesh and Cambodia. None of the studies found a negative effect of the intervention on utilization of services, but some did find the absence of any effect on certain components of maternity care such as the lack of change in uptake of prenatal care in Mexico and in 10 day postnatal check-ups in Honduras.[21,43]

The strength of the findings of these evaluations is the relative simplicity of the outcome variable of utilization of services. Women either did or did not use the services. This leaves relatively little room for misinterpretation, although it does not entirely eliminate the probability of error.

These evaluations reveal a number of limitations depending upon the type of data used. When using comparison groups in neighboring regions to the area of implementation, there is always the potential for crossover effects. Women may seek out vouchers in program areas or benefit from the education, awareness and improvement in services associated with demand-side financing schemes. Secondly, many of these programs, particularly those outside of Latin America, are young programs or even pilot programs. The true results may yet to be fully realized. Particularly, Bangladesh's *MHVS* and India's *Chiranjeevi Scheme* had particularly problematic start-ups with administrative confusion, poor communication of the scheme to providers, and delays in the disbursement of funds. Future evaluations of these programs may reveal different results than these early evaluations. And finally, many of the evaluations relied on maternal self-report of service utilization. While questions on utilization are relatively simple and the timeframe from the utilization of service to the time of the surveys were within standard survey protocol, there is always the potential for recall bias. For those evaluations that

relied upon program data or RHIS, the evaluations are only as good as the record keeping and reporting of providers, health facilities, and program staff.

These interventions and their evaluations represent a wide variety of contexts and designs. None of the studies included in this review discussed the generalizability of their findings to a wider national or even international context. This is most likely do to focus of the evaluations for internal programmatic purposes, but it raises the question of applicability of these findings more broadly. While comparison of findings across contexts and countries should be done with caution, findings allow those implementing similar programs to see demand-side financing program results in a variety of settings with specific health system nuances, demand problems and diverse challenges.

For all of these evaluations, causality is difficult to assign, even in the control randomized evaluations. These evaluations are careful to assign causation to their interventions. Most acknowledge that the intervention could have contributed to increases in maternity service utilization along with other factors, and any increases can be considered estimates. It is particularly challenging to assign causation in developing countries where multiple interventions can be occurring in the same area simultaneously. In Cambodia, two other financing interventions were being implemented in the same area as the voucher scheme making it very difficult to assign causality to any one of the programs.

Implementation

While evaluations have shown that both CCT and voucher programs have the capacity to positively influence uptake of maternity services in low- and middle-income countries, they may not be appropriate in all circumstances. When planning a demand-side financing scheme, programming concerns need to be considered. Firstly, programs need to have very specific

objectives and goals. Planning requires understanding the causes of poverty among the beneficiaries and the actual barriers to seeking maternity services. These can include elements such as gender dynamics, employment, political economy, natural resources, and conflict.[32]

Confusion in communicating these goals to the workforce that implements these programs has hampered the effectiveness of some programs.[20] Good communication can be attained through a robust administrative system. Administrative capacity is essential to maintaining quality of the program, effectively disseminating information to the workforce and communities impacted, and prevention of corruption. There is a cost associated with administrative capacity as well as the financing program itself. Depending on the complexity of the program, implementation of education, targeting, cash transfers, reporting and quality controls can be costly. This has raised particular concerns for implementing these types of financing schemes in Africa where the need is great, but the capacity may not be sufficient.[15]

CCT and voucher schemes are also well-suited to particular areas. Most authors agree that financial incentive programs work best in urban or densely-populated areas where coverage is feasible. [32,36] Sparsely-populated areas may lack services, banking systems (if used for CCTs), and community systems that would facilitate community involvement in targeting. In addition, these programs need advertisement and outreach to potential beneficiaries, which may be impractical in rural areas.[36] It is recognized that rural populations are often poorer, and they are those who could benefit most from these types of interventions despite the challenges of working in those locations.

It may seem intuitive, but CCT and voucher schemes with specific healthcare utilization goals need room to increase consumption. They are designed to address a market failure, so the desired outcome cannot already be purchased or consumed at a rate that gives little room for

improvement.[33] People may already be making informed decisions not to seek care or the particular service desired, so reducing costs may exceed the desired benefits.[4]

There is the consensus that you cannot improve health outcomes by solely focusing on improving demand. Rather, there is a need for sequencing of demand-side and supply-side investments, so a quality supply can support increased demand.[5] Demand creation is not a substitute for investments in supply.[7,10] Some countries have taken measures to circumvent poor public services by contracting with private providers. While co-opting skilled providers is rural areas of India proved successful, simultaneous efforts need to be made to improve public services.[45]

Before developing a demand-creation financing project, experts need to consider elements of governance and political feasibility that may impact program efficacy. Governments are accustomed to investing in supply-side interventions, and it may take considerable advocacy to change the status quo. Nepal successfully used timely data for decision-making to create their voucher scheme.[46] Costs associated with unskilled birth attendance and the desire to reach global maternal health goals brought the spotlight to the issue and research was used effectively and quickly to capitalize on the moment. As better research is completed on financial incentives for demand creation, it will provide greater opportunity to engage in these types of discussions with political leaders.

Once a program is established, scale-up raises additional concerns and challenges. Yet, there is evidence for the effective scale-up of CCT programs in Latin America. Even some of the programs in South Asia that began as small pilot projects have expanded to reach millions. India's *JSY* project alone now covers nearly a third of all women who deliver in India.[47] As programs expand, extra emphasis needs to be placed on consistency of enforcing

conditionalities, targeting to reach the poor, timely disbursement of funds, and avoiding fraud among other concerns.

Conclusion

While the evidence appears to suggest a positive relation between demand creation financing schemes and maternity service utilization, there still remains much that is unknown. Does increased utilization always have a positive impact on maternal health?[29] Can programs designed with other priorities such as improving household consumption have an impact on maternal outcomes? There are significant gaps in knowledge and need for further research and a key question remains as to how these interventions change behaviors. CCTs programs in particular lend themselves to questions such as whether conditionality is necessary or which part of the intervention is responsible for the change?[7] What is the necessary size of a cash transfer to create the best outcomes? Is there a certain number of transfers that is ideal?[32] For long-term cash transfers, when and how do you transition beneficiaries out of the service? For both types of demand-creation financing schemes, there is still little evidence on the relationship between the incentives and quality of care.[43] Finally, costs and cost effectiveness need to be better explored.[4] As of now, only Mexico's *Progresa* has conducted any sort of cost-effectiveness analysis.[5]

As these programs mature and expand new challenges and questions will arise. As is the case with traditional social welfare programs, there is the reality of creating a dependency on the financing mechanism which may not be a desired long-term outcome.[5] Many of these interventions have been financed through donor funding and often on a small scale.[2] The financial sustainability and continued efficacy of the programs remain to be tested. If these challenges can be overcome, demand-creation financing schemes have the potential to impact

more than just maternity service utilization. As maternal health outcomes improve, child health improves, health care costs are reduced, and family stability and cohesion are maintained.

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